

Ancestral Knowledge in Agri-Allied Science



*Ratan Kumar Saha
Dilip Nath
Himadri Saha*



Ancestral Knowledge in Agri-Allied Science

Ancestral Knowledge in Agri-Allied Science

Ratan Kumar Saha

Associate Professor & Head
Department of Fish Health & Environment

Dilip Nath

Research Associate (NAIP, Component III)
Department of Fish Health & Environment

Himadri Saha

Assistant Professor
Department of Fish Health & Environment

College of Fisheries
Central Agricultural University, Lembucherra – 799 210
Agartala, Tripura (West)



NEW INDIA PUBLISHING AGENCY

New Delhi – 110 034



NEW INDIA PUBLISHING AGENCY

101, Vikas Surya Plaza, CU Block, LSC Market
Pitam Pura, New Delhi 110 034, India
Phone: + 91 (11)27 34 17 17 Fax: + 91(11) 27 34 16 16
Email: info@nipabooks.com
Web: www.nipabooks.com

Feedback at feedbacks@nipabooks.com

© Editors, 2014

ISBN: 978-93-83305-21-6

Disclaimer: Ancestral Knowledge in Agri-Allied Science of India. The views expressed in this book are the author's own perception and do not reflect or associate with the organization/institute in which he/she is working. The Editors and Publisher are not responsible for the statements and opinions of the author(s) and any infringement of intellectual property rights by author(s) of chapters included in this edited book.

All rights reserved, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher or the copyright holder.

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the author/s, editor/s and publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The author/s, editor/s and publisher have attempted to trace and acknowledge the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission and acknowledgements to publish in this form have not been taken. If any copyright material has not been acknowledged please write and let us know so we may rectify it, in subsequent reprints.

Trademark notice: Presentations, logos (the way they are written/presented), in this book are under the trademarks of the publisher and hence, if copied/resembled the copier will be prosecuted under the law.

Composed, Designed and Printed in India



डा. एस. अय्यप्पन

सचिव एवं महानिदेशक

Dr. S. AYYAPPAN

SECRETARY & DIRECTOR GENERAL



भारत सरकार
कृषि अनुसंधान और शिक्षा विभाग एवं
भारतीय कृषि अनुसंधान परिषद
कृषि मंत्रालय, कृषि भवन, नई दिल्ली 110 001

GOVERNMENT OF INDIA
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION
AND
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
MINISTRY OF AGRICULTURE, KRISHI BHAVAN, NEW DELHI 110 001
Tel.: 23382629; 23386711 Fax: 91-11-23384773
E-mail: dg.icar@nic.in

Foreword

From ancient times, agriculture has been a major source of food for humanity and a provider of employment and economic benefits to those engaged in this activity. Since then, human-beings have evolved and subsequently developed technologies for meeting their livelihood through agricultural and allied activities. Those knowledge or technologies are synonymously called as Indigenous Technical knowledge or Indigenous Traditional Knowledge. These knowledge are very precious and in modernization era, these are getting lost. Those are needed to be preserved in the form of manuscript, technical paper or in digital form etc.

I am glad to note that Dr. R.K. Saha, Dr. D. Nath and Mr. H. Saha have compiled and edited all the articles received from different parts of India and published as a book entitled “**Ancestral Knowledge in Agri-Allied Science**”. This book is an appreciable initiative towards preservation of ancestral knowledge in the agri-allied field. Several examples have been cited where theoretical and laboratory based technology failed due to location specific variability, technology developed based on ITKs showed significant acceptance.

I am confident that this book will prove helpful as a reference to students, entrepreneurs, researchers and others to improve their comprehension about the requirement by a locality and will help those rural actors to develop new technologies, using traditional knowledge along with imagination, creativity and determination to replace existing insignificant models.

Dated the 22nd April, 2013, New Delhi

(S. Ayyappan)

Preface

The book entitled “**Ancestral Knowledge in Agri-Allied Science**” is intended to be of vast application in the field of agriculture and it is hoped that it will prove of interest to numerous people working in the field of agri-allied sectors. The book is the compilation of several chapters contributed by different resource persons of the country working in the same field for several years.

This book is designed and covered several topics keeping in mind the background knowledge of the targeted reader of this book. The readers may be new in the field as well as the experienced professionals. The book has covered different Indigenous Traditional Knowledge (ITK) related to the agri-allied sector of the country. Another motto of this book is to document some of the knowledge of the indigenous people inhabiting in different geographical regions of the country with their own language, culture, tradition, belief, folklore, rites and rituals, which are eventually getting lost. Several researchers are working on ITK in different fields of agriculture and allied sectors. There is a demand on a standard book like this on the overview of ITKs of this sector.

A foreseeable criticism of this book is that it is patchy in its coverage of the all the ITKs of the country in the concerned field- some are covered extensively and some are not. However, efforts were being done to cover major topics of all sectors. This book is designed in such a way that will give an overview of ITK, the differences between Science & ITK, different tools and techniques used in ITK, classification, importance & utilization of ITK, and recent ongoing researches on ITK in different parts of India.

Another objective of this book is to encourage the study of ethnic knowledge on different field of agriculture and allied sector. It is also an attempt to circulate amongst a larger group of readers regarding the importance of indigenous knowledge in scientific world.

We hope this book will help all personals to gathered knowledge about the skills and techniques used by the ancestors in the field of agriculture and allied sectors for the benefits of mankind. Although we have complied that book is not primarily intended for the researchers and hope it will help them to concentrate their attentions where they are more needed.

In fact it is a matter of great pleasure for us to associate ourselves in the task for compilation of traditional information available with the farmers in the form of a book. We are very much indebted to Dr. S. Ayyappan, Secretary & Director General, Government of India, Department of Agricultural Research & Education and Indian Council of Agricultural Research, Ministry of Agriculture, New Delhi for providing us the foreword with his encouraging words. We are very much grateful to Dr. S.N. Puri, Vice Chancellor, Central Agricultural University, Imphal, Manipur for his kind support, cooperation and permitting us to publish this book for wider accessibility. The editors are highly indebted to Professor M. Rohini Kumar Singh, Director of Research, CAU, Imphal, Professor M. Premjit Singh, Director of Extension, CAU, Imphal and Professor J. R. Dhanze, Dean, College of Fisheries, CAU, Lembucherra, Tripura for their support, suggestions and guidance in compilation of this book.

The editors would like to express their gratefulness to all the contributors of different part of the country who have contributed their valuable studies and surveys as chapters and all of our CAU Faculty Members and Technical Staff Members for their timely help in preparation of this book. The authors are gratefully acknowledges the refereed scientists, teachers, researchers and friends for providing their help in writing this book to fulfill the students and researchers need. Last but not the least editors are sincerely acknowledges the help and cooperation of all of their family members and all the well wishers who have rendered their inspiration all along on completion of this book. Hope, this book will prove helpful to all those who are related with agriculture/ horticulture/ animal husbandry/ aquaculture/fisheries in one way or the other. Any error or omission is not intentional. Constructive scrutiny, suggestion and feedback are also welcome from all concerns and will be gratefully received and acknowledged for improving this book in all respect for the greater interest of this applied and fast growing field. It is our proud privilege and pleasure to express our deep sense of gratitude towards the publishers of this book for critically reviewing the book and publishing our compilations within short span of time. All feedback can be sent to feedbacks@nipabooks.com; or ratankumarsaha123@rediffmail.com; or ratankumarsaha123@gamil.com.

Editors

Contents

| | |
|---|------------|
| <i>Foreword</i> | v |
| <i>Preface</i> | vii |
| <i>Contributors</i> | xiii |
| 1. An Overview of Indigenous Technical Knowledge in Relation to Agri-allied Sector | 1 |
| <i>R.K. Saha, D. Nath and H. Saha</i> | |
| 2. Basic Concept of Indigenous Knowledge and it's Protection in India ... | 23 |
| <i>Ajit Kumar Roy</i> | |
| 3. Traditional Ecological Knowledge: An Important Pillar in Fisheries Resource Management | 41 |
| <i>Biswarup Saha, Tanmay Samajdar and P. K. Pal</i> | |
| 4. Indigenous Technical Knowledge for the Management of Major Pests of Field Crops in North East India | 61 |
| <i>D. M. Firake, P. D. Firake, G. T. Behere, N.S. Azad Thakur and Dilip Nath</i> | |
| 5. Traditional Practices for the Management of Major Pests of Horticultural Crops and Stored Produce in North East India | 73 |
| <i>D.M. Firake, P.D. Firake, G.T. Behere, N.S. Azad Thakur and D. Nath</i> | |
| 6. Indigenous Pest Management Practices in North East India - An Overview | 85 |
| <i>Arunava Samanta, Archan Kanti Das and Sandip Patra</i> | |
| 7. Notes on the Ethno-Veterinary Practices Used for Treatment of Different Ailments in Tripura State, India | 101 |
| <i>Partha Pratim Bhattacharjee, J. Majumder, R. Lodh and B. K. Agarwala</i> | |
| 8. Indigenous Traditional Knowledge Associated with Fermented Fish Products of North East India | 115 |
| <i>A. U. Muzaddadi</i> | |
| 9. Traditional Ethnic Jewellery of Kashmiri Fisherwomen | 129 |
| <i>Rizwana, T. H. Bhat, M. H. Balkhi and Poonam Sharma</i> | |

| | |
|--|------------|
| 10. Documentation of Ethno-Entomophagy Practices in Ethnic Communities of Manipur, North East India | 137 |
| <i>T. Shantibala, R.K. Lokeshwari, B. K. Agarwala, and Gusheinzed Waikhom</i> | |
| 11. Traditionally Used Fish Feed Ingredients and Manure in Aquaculture in the North Eastern State of Tripura | 165 |
| <i>M.K. Datta</i> | |
| 12. Identification of Indigenous Resource and its Management for Livelihood by Tribal Women Fishers of Dooars Region of West Bengal Using PRA Technique: A Case Study | 177 |
| <i>Ambalika Ghosh</i> | |
| 13. Selected Indigenous Technical Knowledge (ITK) on Fisheries in Tripura State | 189 |
| <i>Sagar C. Mandal, Pampa Bhattacharjee and Debtanu Barman</i> | |
| 14. Indigenous Disease Management Practices in Traditional Farming Systems in India | 203 |
| <i>A. Chakraborty and Subham Dey</i> | |
| 15. Highly Effective Fishing Methods in Central Assam as Perceived by Fishers | 215 |
| <i>Rajita Devi and Biswarup Saha</i> | |
| 16. Nu Ta: An Indigenous Fish Catching Gear of Arunachal Pradesh, India | 223 |
| <i>Pema Chotten Wangja, Olik Jomang, Krishna Prasad Sharma and Yumlembam Jackie Singh</i> | |
| 17. Shifting Responses of Tadpole Larvae and Frog from Fish Pond in Presence of Hypoxia, Obnoxious Gases and Predators | 229 |
| <i>Ramanuj Chakraborty, Subrata Shib and Himadri Saha</i> | |
| 18. Application of Indigenous Technical Knowledge for Treating Ectoparasitic Infestations in Animals | 233 |
| <i>W. Ramdas Singh, Debasish Behera, Hijam S. Devi, and P. H. Patra</i> | |
| 19. Traditional Fermented Fish Products of North Eastern States of India | 241 |
| <i>Yumlembam Jackie Singh, Huiem Bharati and Pema Chotten Wangja</i> | |
| 20. Indigenous Technical Knowledge (ITK) in Animal Husbandry Practices | 247 |
| <i>Avijit Halder, Chintu Deb Barma and Rajkumari Sanjukta</i> | |
| 21. Traditional Fishing Practices in North Eastern Region of India | 265 |
| <i>Anil Datt Upadhyay</i> | |

- 22. Use of Black Drongo for Pest Management in Rice: A Traditional Agricultural Practice by the Rural Farmers of Tripura 293**
Partha Pratim Bhattacharjee, Joydeb Majumder and Pranabjit Bardhan Roy
- 23. On Some Aspects of Sampling Methodology with Reference to Indigenous Traditional Knowledge 299**
Prasenjit Pal

Ancestral Knowledge in Agri-Allied Science



Readership: The book will cater the needs of agriculturist, ecologist, entomologist, aquaculturist, veterinarians, sociologist, researchers, scientist, academicians, extension workers and policy makers to find out a concept regarding solution on conservation of natural resources in a sustainable manner.

The book may help to know the indigenous technical knowledge of different ethnic community, to characterize the available bio-resources, to catalogue the available bio-resources and to protect the IPR issues for future uses.

Indigenous knowledge is the knowledge of the indigenous people inhabiting different geographical regions of the world with their own language, culture, tradition, belief, folklore, rites and rituals. Indigenous knowledge so developed is based on necessities, instinct, curiosity and observations of ethnic groups to mitigate the immediate situations. Eventually, this local knowledge in course of time gets socially accepted and validated which finally inters into the social life and subsequently become the Indigenous Traditional Knowledge (ITK) of the society as a whole. As such, scientist who are in research of new ideas and innovations expect that indigenous knowledge may hold significant message which may be of use to remedy the deficiencies in modern agricultural and environment related issues.

There is a need for studying and documenting traditional knowledge in different ecological and cultural environments. Several researchers are working on ITK in different fields of agriculture and allied sectors. There is a demand for a standard book on the overview of ITK. This book is designed in such a way that will give an overview of ITK, the differences between Science & ITK, different tools and techniques used in ITK, classification, importance & utilization of ITK, and recent ongoing researches on ITK in different parts of India.

The objective of this book is to encourage the study of ethnic knowledge in different field of agriculture and allied sector. It is also an attempt to circulate amongst a larger group of readers regarding the importance of indigenous knowledge in scientific world.

This book will, perhaps, be well received in all the Agricultural Universities, Animal Husbandry & Fisheries University, State Govt. Agri-allied Departments, Private and Public Sector Institutions where training, teaching, research and extension of agri-allied sector is undertaken.

2014 , 320 pages, figures, tables, colour plates, 25cm

Ratan Kumar Saha: Associate Professor & Head, Department of Fish Health & Environment, College of Fisheries, Central Agricultural University, Lembucherra – 799 210, Agartala, Tripura (West)

Dilip Nath: Department of Fish Health & Environment, College of Fisheries, Central Agricultural University, Lembucherra – 799 210, Agartala, Tripura (West)

Himadri Saha: Assistant Professor, Department of Fish Health & Environment, College of Fisheries, Central Agricultural University, Lembucherra – 799 210, Agartala, Tripura (West)



NEW INDIA PUBLISHING AGENCY

101, Vikas Surya Plaza, CU Block, L.S.C. Market

Pitam Pura, New Delhi-110 034, India

Tel. : +91(11) 27341717, Fax : +91(11) 27341616

E-mail : info@nipabooks.com

Web : www.nipabooks.com

ISBN 9789383305216

